

## [Editorial] Improving supply chain performance through management capabilities

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## **Editorial**

### **Improving Supply Chain Performance through Management Capabilities**

Guest editors: Angappa Gunasekaran, Nachiappan Subramanian, and Shams Rahman

This editorial piece introduces the novelty of the special issue call for papers and lists the various topics suggested in the call for papers. The summary of accepted review papers is presented in terms of novelty, findings, and limitations. The review papers are classified as per supply chain management capability model, and finally, the editorial piece opens up further research directions to academics and practitioners.

#### **1. Introduction**

One important element in any supply chain is the talent. The supply chain depends on smart supply chain managers and how they deal with people, relationships, and contemporary issues. In this special issue, we focus on knowledge, talent, and human resources. Contemporary supply chain management faces many challenges, such as globalization, increasing in logistics cost, greater product variety, shorter product life cycles, increased level of risk, increased labor costs in developing countries, rapid development of information technology, sustainability, and volatility of commodity prices. These challenges require capable workers with dynamic skills to make the supply chains of the future successful.

Each activity requires a different skill set in the supply chain. For example, managers responsible for purchasing should know techniques related to forecasting, positioning the product, inter-firm relationships, etc. At plant level, they should know techniques about inventory, product design, production planning, quality improvement, and distribution management. Similarly, they should know techniques about managing warehouses, retailers, and product returns. It not well known which competencies supply chain managers have to specialize in to gain understanding about the overall supply chain.

This special issue uncovers the latest knowledge and techniques available to supply chain managers who deal with supply chain dynamics. In addition, this special issue helps build research surrounding management capabilities that improve supply chain performance.

## 2. Review of special issue papers

We received more than 50 papers, and 15 papers survived the rigorous review process. We summarize the accepted articles as per our call for topics.

- *Market understanding and customer insight*

Ramanathan et al. discuss ways and means to improve retail stores' supply chain management capabilities, such as planning and replenishment as per customer behavior and loyalty. Predominantly, the study aims to increase the value of customer service and operational efficiency. An interesting finding of the study is the indirect relationship between service operations and customer behavior, which is quite different than the conventional wisdom that pays attention to loyalty and promotions. *Supplier development techniques*

A study by Li et al. reveals the potential of supplier development capability and how it can reduce the risk of opportunism, increase flexibility, and increase overall outsourcing performance. In particular, the authors are concerned about manufacturing outsourcing in the context of China and the role played by the supplier development capability. The authors direct future researchers to include multi-dimensional outsourcing performance that includes the economic, strategic, and relational perspectives when evaluating the effect of supplier development. The authors delineated that most previous studies in the Chinese manufacturing context are related to a buyers' perspective, neglecting other sectors such as the service sector and suppliers' perspective.

Developing suppliers' social responsibility capability is a vital aspect in dealing with triple bottom line performance. Using multiple case studies, Zhang et al. expose how standard operation procedures, audits, collaboration, and training can be helpful in developing supplier capabilities. Moreover, they identify the root causes as direct and indirect causes. Indirect causes are standard operation procedures and audits caused by institutional pressures, whereas collaboration and training are direct causes for developing supplier social responsibility capabilities. We can understand from their study that supplier social responsibility capability development is at an early stage, and that this particular concept needs rigorous testing on a larger scale to find its impact on a wider variety of industries and the corresponding mutual benefits of the inclusion of wider constructs, such as indirect and direct supplier development and supply chain social responsibility. The authors realize the role of social capital on the relationship between

supplier development and supply chain social responsibility. *Management of complexity and change*

Shamsuzzoha and Helo explain the challenges faced by a product designer and the essential capabilities of managing a product portfolio. To deal with product design challenges, the study proposes a sustainable platform architecture and design guidelines for modular products. The study validates the proposed approach using the case of a marine engine machine building company. The study also points out the need for further analysis to show the break-even analysis for adopting the proposed design guidelines and checklist. The authors express concern for developing a decision support tool for evaluating improved design architecture over integrated architecture in terms of quality, cost effectiveness, and volume of demand. They also feel the need for robust measures and methods to compare different procedures quantitatively.

- *Information systems and information technology expertise*

Helo and Hao show, with the support of extensive review and case evidence, the use of a cloud-based platform in sheet metal processing and, in particular, how it could enhance collaboration during production planning. Basically, the study emphasizes the role of technological capability that managers must adapt over time to survive and compete in the modern era. The authors also foresee security issues with the use of a cloud computing platform, which sits on a network of computers where internal risk is predominant. They suggest investigating and developing intelligent, networked, service-oriented features for the digitalized manufacturing industry.

- *Prioritizing supply chain improvement efforts*

Automotive supply chain competitiveness is investigated by Khompatraporn and Somboonwiwat. They prioritize ten factors that influence competitiveness in the Thai automotive industry using a DEMATEL technique. The results of the study reveal the importance of human factors on the competitiveness of the industry. The authors feel that micro-level analysis considering environmental and supply chain disruptions is essential and could pave the way to developing automotive supply chains' resilience and risk-mitigation capabilities. Importantly, they suggest analyzing the effect of automation, multiple sourcing, and location.

Govindan et al. develop a comprehensive performance indicators framework to improve supply chain performance by using literature review and practitioners' insights from four

case studies in the Indian context. Since most of the performance indicators are subjective, the authors use fuzzy AHP to prioritize the performance indicators. The study suggests that companies in the emerging economy context develop collaboration and information exchange capability to improve supply chain performance. The authors also express the methodological issues, such as involvement of multiple stakeholders instead of using experts' opinions, and include relevant indicators instead of expanding the multiple indicators. To investigate the outcome, the authors emphasize carrying out cross-comparative studies.

- *Supply chain knowledge management techniques*

Alletto et al. discuss the prominence of knowledge flow in terms of patents, research services, and development commodities other than conventional flows in a supply chain, such as information, material, and finance. Specifically, they investigate the relationship between collaboration experience in knowledge supply chain and the propensity of firms to develop patents. In addition, they study the mediating effect of firms' structural embeddedness within knowledge supply chain. Interestingly, they find strong support for accumulation of collaborative experience being central to translating into patents. The authors use a secondary data set to verify the relationship, and they feel primary data is essential to understanding various issues in depth. The study's focus is on the biotechnology industry, and for the purpose of generalization, the study has to be expanded to other sectors. In the future, the authors suggest including other characteristics, such as relational and cognitive embeddedness of the social network, which includes cliques, repeated ties, and shared values instead of structural holes and centrality.

Creating a knowledge base is an essential aspect for cross-fertilizing in the competitive fashion industry. Considering the footwear industry, Zangiacomi et al. emphasize the need for knowledge and competence to configure and manage the modern supply chain, which has to satisfy customers' individual needs. The dominant finding of the study is to share best practices between industries to rapidly improve the supply chain managers' competence. The study foresees the need for a smart, collaborative, customer-driven network model where small and medium fashion industries work in tandem with large enterprises by aligning best practices with the use of information and communication technologies. We can see the need for solid performance dimensions in terms of

knowledge, ICT, and organizational perspectives to forge collaborative partnerships between heterogeneous companies within an industry.

- *Inter-firm relationship skills*

The role of formal and informal controls in strengthening the relationship between buyers and suppliers is emphasized by Li et al. in the Chinese manufacturing outsourcing context. Evidence from the study reveals the role of popular phenomena such as *guanxi* in enhancing outsourcing performance. Overall, the study sheds light on managers of capability in working with the suppliers from high-context countries. The authors also realize the limitations of their findings related to manufacturing and logistics, and they suggest replicating the studies to diverse sectors to generalise the findings. In addition, the authors sense that the future studies should investigate the contextual effects such as efficiency outsourcing, innovation seeking outsourcing, complexity of tasks and length of relationships to understand the dependence of manufacturers on suppliers.

- *Dynamic performance measurement techniques*

McAdam et al. study two issues relevant to dynamic performance measurement techniques and the necessity of focusing on management capability within a horizontal supply chain using dynamic capability and goal theory. Through empirical evidence, they show how motivators and behaviors play a role within performance measurement dynamic capability theory. In particular, they show that management capability can create consensus in goal setting and resource change. In the future, the authors suggest developing management capability for horizontal supply chains using other perspectives instead of performance measurement. Since the concept of supply chain management capability is at an evolving stage, the authors emphasize the need for ethnographic and longitudinal studies. Similarly, the authors suggest validating their management capability performance measurement model in different contexts at both the macro and micro levels. There is an immediate need to develop a measurement scale to conduct cross-sectional empirical survey in the future.

- *Organizational proactive management techniques*

- The study by Yusuf et al. investigates the proactiveness of companies in implementing the returnable transport packaging practice in the African context. The study primarily captures the natural resource-based view capabilities of firms to engage in the practice through empirical evidence based on drivers and barriers classification. The study also

identifies the relationship between the returnable transport packaging and the firm performance. Interestingly, the study reveals that the firms in the emerging economy are eager to develop capabilities to deal with these practices if there is a sufficient availability of funds within the firm. At the moment, only larger firms are adapting to claim elite status, saying they are implementing sustainability initiatives, but still it is not common due to financial constraints. *Measurement and management of supply chain skills*

The inclination of supply chain managers toward green collaboration is a vital element in promoting green supply chain management in the Chinese automotive industry. A study by Yu et al. emphasizes the role of human capital and appropriate supplier selection that can lead companies to implement green supply chain management and to achieve environmental and operational performance. The authors mention that they have considered only limited dimensions, and that future research should include supplier evaluation and monitoring. There is a need to consider the downstream side of supply chain to develop green supply chain management capabilities and reinforce the buyer-supplier relationship to take care of reverse logistics and find out the various pressures that either moderate or mediate the relationship.

- *Relationship management in all processes*

The study by Jabbour et al. investigates the relationship between green supply chain proactivity and firms' critical success factors. The study uses resource-based view theory and multiple case studies from the Brazilian context to develop a research framework and propositions to find the significance of critical success factors such as information management, measurement, competence for greener products and processes, training, and total involvement of employees for green supply chain management. The authors suggest that green human resource management is not yet fully developed, and that firms need to develop capability to support the selection and training of human resources.

The paper by Irani et al. contributes to the research domain by examining the role of knowledge management in facilitating green supply chain collaboration (GrSCC). They proposed a model for implementing GrSCC using a futures-based perspective. This paper demonstrates the relationship between identified GrSCC factors through the application of a fuzzy cognitive mapping technique. Findings from this research support a futures-based perspective that enhances understanding and refines forward-looking strategies for GrSCC. This paper reports a granular perspective of positive and negative causal factors that support enabling energy futures that enhance green supply credentials.

### 3. Supply chain management capability framework and future research directions

A study by Essex et al. (2016) investigated how supply chain managers' capabilities impact individual and firms' performance. The study captured the overall role of supply chain manager capability, but didn't specifically focus on upstream or downstream supply chain. In addition, there is no detailed study on how to focus on capabilities with respect to various functions of supply chain. Hence, as per our call for paper topics, we tried to map the supply chain management capabilities as shown in Figure 1 and discuss the future directions of research.

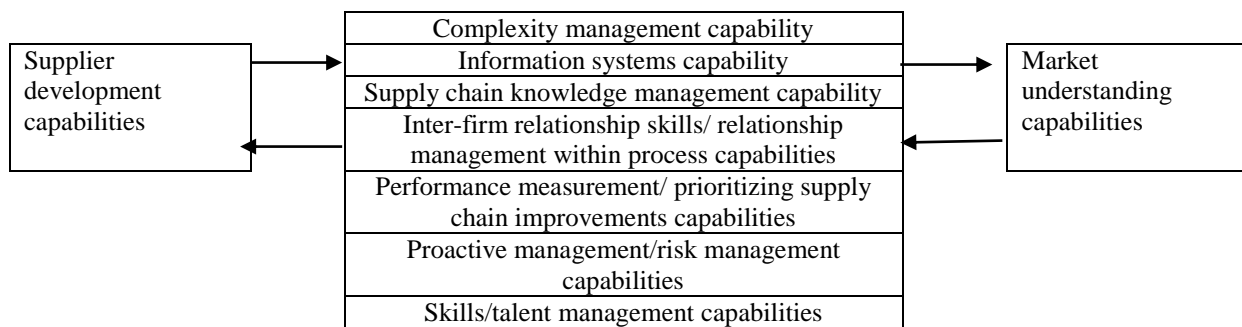


Figure 1: Supply chain management capabilities

Interestingly, we received studies covering most of the topics we suggested in the original call except supply chain risk techniques, natural competency development, adapting competency development, team working capabilities, and talents in supply chain. This shows that supply chain human competency development is an evergreen area and has a lot of potential for researchers to work on the topics corresponding to supply chain talent, as well as the evolving natural and adapting competency development. The call shows us there is a lot of scope to work on supply managers' judgment aspects in the era of emerging uncertainty.

#### *Future research directions*

From this work we have put together the following list of research areas

#### Supplier development capabilities

- Potential of role of contextual variables such as power relationship between buyer and supplier.
- Detailed studies to explain how to develop service suppliers' capabilities.



- Studies to understand the role of short-term gains versus long-term gains perceived by suppliers when there is a substantial investment by buyers in different country contexts.
- Strong need to test supplier social responsibility model through large-scale empirical evidence.
- Role of supplier social responsibility in different industry and country contexts.
- To what extent successful supply chain management principles will influence a supplier's social responsibility.

#### Market understanding capabilities

- What are capabilities e-businesses need to develop as per customer behavior and loyalty to exceed the expectations of the customer?
- Development of operations capabilities such as planning and replenishment as per business-to-business and business-to-customer.
- Operations capabilities to segregate customers as per satisfaction and profitability and find a suitable trade-off.
- What are the specific adapting skills required for managers to deal with online retail logistics?

#### Complexity management capability

- Need for decision support system to understand break-even analysis of new design procedures and verify in terms of quality, cost effectiveness, and volume of demand.
- robust measures and methods to compare different design procedures quantitatively.
- Need to develop a process improvement capability.

#### Information systems capability

- Need for decision support system to understand break-even analysis of new design procedures and verify in terms of quality, cost effectiveness, and volume of demand.
- How to improve security in the cloud computing platform?
- How to mitigate risk in internal networks due to the cloud computing platform?
- How to increase ambidexterity skills of managers due to the arrival of new technology, such as internet of things and autonomous devices?
- Investigate the suitability of intelligent and service-oriented features for digital economical activities.
- What are country-specific micro-level factors that managers need to consider to improve the resilience of the supply chain?

#### Supply chain knowledge management capability

- Supply chain knowledge management is studied using secondary data, and there is a strong need for the development of an evidence-based system.
- How to include relational and cognitive factors such as cliques, repeated ties, and shared values when developing a knowledge management system of upstream and downstream supply chain network
- What dimensions need to be considered when studying heterogeneous firms in terms of knowledge, ICT, and organizational perspectives?

Inter-firm relationship skills and relationship management within process capabilities

- Influence of macro- and micro-level factors to validate management capability model for horizontal supply chain.

Performance measurement and prioritizing supply chain improvements capabilities

- How to develop management capability for horizontal supply chain instead of using performance measurement perspectives
- Need for ethnographic and longitudinal studies for supply chain management capability development.
- Need for the development of measurement scales for dynamic performance measurement.

Proactive management and risk management capabilities

- Investigate packaging issues at the micro level in the future based on product status.
- Investigate the contextual effects, such as efficiency outsourcing, innovation seeking outsourcing, complexity of tasks, and length of relationships, to understand the dependence of manufacturers on suppliers.

Skills/talent management capabilities

- Need to consider the downstream side of supply chain to develop green supply chain management capabilities and reinforce buyer-supplier relationship to take care of reverse logistics and find out the various pressures that either moderate or mediate the relationship.
- How to develop green capability to support selection and training of human resources?

We sincerely thank all the contributing authors for their overwhelming response to our calls. Interestingly, we received many quality submissions, which made our life tough in choosing high-quality submissions for this special issue. Our heartfelt thanks to the anonymous reviewers whose contributions are stupendous — they offered rigorous, constructive comments without any hesitation when we approached them. We all know the quality of the

paper depends on the reviewers. For this special issue, we engaged more than sixty peer reviewers, and their voluntary support to the academic community is highly commendable.

Finally, we pay our rich tributes to the Editor-in-Chief, Stephen J. Childe, for his support and encouragement from day one until now, with superb guidance to our special issue journey. He was very kind in allowing us to accommodate various authors' revision submission extension requests and additional papers

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